

SAFETY DATA SHEET**Kovacs Reagent**

According to Regulation (EC) No 1907/2006, Annex II, as amended.

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1. Product identifier****Product name** Kovacs Reagent**Product number** PL.375**1.2. Relevant identified uses of the substance or mixture and uses advised against****Identified uses** Laboratory reagent.**Uses advised against** No specific uses advised against are identified.**1.3. Details of the supplier of the safety data sheet****Supplier** Pro-Lab Diagnostics
3 Bassendale Road
Wirral
Merseyside
CH62 3QL
Tel: 0151 353 1613
Fax: 0151 353 1614
mowen@pro-lab.com**1.4. Emergency telephone number****Emergency telephone** +44 (0)151 353 1613 Monday to Friday 9.00 to 17.00
+44 (0)7714 429 646 outside the above hours**SECTION 2: Hazards identification****2.1. Classification of the substance or mixture****Classification (EC 1272/2008)****Physical hazards** Flam. Liq. 3 - H226**Health hazards** Acute Tox. 4 - H332 Skin Irrit. 2 - H315 STOT SE 3 - H335**Environmental hazards** Not Classified**Classification (67/548/EEC or 1999/45/EC)** Xn; R20. Xi; R37/38. R10**2.2. Label elements****Pictogram****Signal word** Warning**Hazard statements** H226 Flammable liquid and vapour.
H315 Causes skin irritation.
H332 Harmful if inhaled.
H335 May cause respiratory irritation.

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Precautionary statements	<p>P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.</p> <p>P280 Wear protective clothing, gloves, eye and face protection.</p> <p>P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.</p> <p>P332+P313 If skin irritation occurs: Get medical advice/ attention.</p> <p>P312 Call a POISON CENTER/ doctor if you feel unwell.</p> <p>P501 Dispose of contents/ container in accordance with national regulations.</p>
Contains	1-pentanol, hydrochloric acid
Supplementary precautionary statements	<p>P233 Keep container tightly closed.</p> <p>P240 Ground/ bond container and receiving equipment.</p> <p>P241 Use explosion-proof electrical equipment.</p> <p>P242 Use only non-sparking tools.</p> <p>P243 Take precautionary measures against static discharge.</p> <p>P261 Avoid breathing vapour/ spray.</p> <p>P264 Wash contaminated skin thoroughly after handling.</p> <p>P271 Use only outdoors or in a well-ventilated area.</p> <p>P362+P364 Take off contaminated clothing and wash it before reuse.</p> <p>P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.</p> <p>P370+P378 In case of fire: Use foam, carbon dioxide, dry powder or water fog to extinguish.</p> <p>P403+P235 Store in a well-ventilated place. Keep cool.</p> <p>P405 Store locked up.</p>

2.3. Other hazards

This product does not contain any substances classified as PBT or vPvB.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

1-pentanol	50 - 100%
CAS number: 71-41-0	EC number: 200-752-1
Classification	Classification (67/548/EEC or 1999/45/EC)
Flam. Liq. 3 - H226	Xn; R20. Xi; R37/38. R10
Acute Tox. 4 - H332	
Skin Irrit. 2 - H315	
STOT SE 3 - H335	
hydrochloric acid	5 - <10%
CAS number: 7647-01-0	EC number: 231-595-7
Classification	Classification (67/548/EEC or 1999/45/EC)
Skin Corr. 1B - H314	C; R34. Xi; R37
Eye Dam. 1 - H318	
STOT SE 3 - H335	

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

General information Keep affected person away from heat, sparks and flames.

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Inhalation	Immediate first aid is imperative. Loosen tight clothing such as collar, tie or belt. Maintain an open airway. Move affected person to fresh air at once. Place unconscious person on their side in the recovery position and ensure breathing can take place. When breathing is difficult, properly trained personnel may assist affected person by administering oxygen.
Ingestion	Rinse mouth thoroughly with water. Do not induce vomiting unless under the direction of medical personnel. If in doubt, get medical attention promptly.
Skin contact	Rinse cautiously with water for several minutes. Remove contaminated clothing. Wash contaminated clothing before reuse.
Eye contact	Remove contact lenses, if present and easy to do. Continue rinsing. Rinse immediately with plenty of water. Get medical attention if symptoms are severe or persist after washing.

4.2. Most important symptoms and effects, both acute and delayed

Inhalation	Symptoms following overexposure may include the following: Coughing, chest tightness, feeling of chest pressure. Drowsiness, dizziness, disorientation, vertigo. May cause discomfort.
Ingestion	May cause discomfort if swallowed.
Skin contact	Causes skin irritation. Dryness and/or cracking. Prolonged or repeated exposure may cause severe irritation.
Eye contact	May cause temporary eye irritation.

4.3. Indication of any immediate medical attention and special treatment needed

Notes for the doctor	The severity of the symptoms described will vary dependent on the concentration and the length of exposure.
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SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog.
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture

Specific hazards	Flammable liquid and vapour. Vapours may be ignited by a spark, a hot surface or an ember.
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5.3. Advice for firefighters

Protective actions during firefighting	Fight fire from safe distance or protected location. Use water spray to reduce vapours. Cool containers exposed to heat with water spray and remove them from the fire area if it can be done without risk. If a leak or spill has not ignited, use water spray to disperse vapours and protect men stopping the leak.
Special protective equipment for firefighters	Use air-supplied respirator, gloves and protective goggles. Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing. Use protective equipment appropriate for surrounding materials.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions	Follow precautions for safe handling described in this safety data sheet. No smoking, sparks, flames or other sources of ignition near spillage. Provide adequate ventilation.
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6.2. Environmental precautions

Environmental precautions	Avoid the spillage or runoff entering drains, sewers or watercourses.
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6.3. Methods and material for containment and cleaning up

Methods for cleaning up Take care as floors and other surfaces may become slippery. Contain spillage with sand, earth or other suitable non-combustible material. Absorb in vermiculite, dry sand or earth and place into containers. Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

6.4. Reference to other sections

Reference to other sections For personal protection, see Section 8. For waste disposal, see Section 13. See Section 11 for additional information on health hazards. See Section 12 for additional information on ecological hazards.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions Avoid breathing vapours. Avoid contact with eyes and prolonged skin contact. Avoid the formation of mists. Ground/bond container and receiving equipment.

Advice on general occupational hygiene Do not eat, drink or smoke when using this product. Eye wash facilities and emergency shower must be available when handling this product. Good personal hygiene procedures should be implemented. Take off contaminated clothing and wash it before reuse. Wash promptly with soap and water if skin becomes contaminated.

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions Keep at temperature not exceeding 25°C.

Storage class Flammable liquid storage.

7.3. Specific end use(s)

Specific end use(s) The identified uses for this product are detailed in Section 1.2.

SECTION 8: Exposure Controls/personal protection

8.1. Control parameters

Occupational exposure limits

hydrochloric acid

Long-term exposure limit (8-hour TWA): WEL 1 ppm 2 mg/m³ gas and aerosol mists

Short-term exposure limit (15-minute): WEL 5 ppm 8 mg/m³ gas and aerosol mists

WEL = Workplace Exposure Limit

8.2. Exposure controls

Appropriate engineering controls Avoid inhalation of vapours and spray/mists. Good general ventilation should be adequate to control worker exposure to airborne contaminants. In case of insufficient ventilation, wear suitable respiratory equipment.

Eye/face protection Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible. The following protection should be worn: Chemical splash goggles.

Hand protection Chemical-resistant, impervious gloves complying with an approved standard should be worn if a risk assessment indicates skin contact is possible. The most suitable glove should be chosen in consultation with the glove supplier/manufacturer, who can provide information about the breakthrough time of the glove material. Frequent changes are recommended. The breakthrough time for any glove material may be different for different glove manufacturers.

Other skin and body protection Wear anti-static protective clothing if there is a risk of ignition from static electricity.

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Hygiene measures	Do not eat, drink or smoke when using this product. Eye wash facilities and emergency shower must be available when handling this product. Good personal hygiene procedures should be implemented.
Respiratory protection	If ventilation is inadequate, suitable respiratory protection must be worn. Seek advice from supervisor on the company's respiratory protection standards. Respiratory protection complying with an approved standard should be worn if a risk assessment indicates inhalation of contaminants is possible.

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Appearance	Liquid.
Colour	Light (or pale). Green.
Odour	Characteristic.
pH	Not relevant.
Melting point	Not relevant.
Initial boiling point and range	Not determined.
Flash point	23 - 60°C
Evaporation rate	Not determined.
Flammability (solid, gas)	Not determined.
Upper/lower flammability or explosive limits	Not determined.
Vapour pressure	Not determined.
Vapour density	Not relevant.
Relative density	Not determined.
Solubility(ies)	Soluble in water.
Partition coefficient	Not determined.
Auto-ignition temperature	Not determined.
Decomposition Temperature	Not determined.
Viscosity	Not determined.
Explosive properties	Not considered to be explosive.
Oxidising properties	Does not meet the criteria for classification as oxidising.

9.2. Other information

Other information	None.
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SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity	No test data specifically related to reactivity available for this product or its ingredients.
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10.2. Chemical stability

Stability	Stable at normal ambient temperatures and when used as recommended.
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10.3. Possibility of hazardous reactions

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Possibility of hazardous reactions Acids. Alkalis. Oxidising agents.

10.4. Conditions to avoid

Conditions to avoid Avoid heat, flames and other sources of ignition.

10.5. Incompatible materials

Materials to avoid Acids. Alkalis. Oxidising agents.

10.6. Hazardous decomposition products

Hazardous decomposition products Thermal decomposition or combustion products may include the following substances: Carbon dioxide (CO₂). Carbon monoxide (CO). Nitrous gases (NO_x). Hydrocarbons. Does not decompose when used and stored as recommended.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity - oral

Notes (oral LD₅₀) Based on available data the classification criteria are not met.

Acute toxicity - dermal

Notes (dermal LD₅₀) Based on available data the classification criteria are not met.

Acute toxicity - inhalation

Notes (inhalation LC₅₀) Acute Tox. 4 - H332 Harmful if inhaled.

ATE inhalation (vapours mg/l) 15.71428571

Skin corrosion/irritation

Animal data Based on available data the classification criteria are not met.

Serious eye damage/irritation

Serious eye damage/irritation Eye Irrit. 2 - H319 Causes serious eye irritation.

Respiratory sensitisation

Respiratory sensitisation Based on available data the classification criteria are not met.

Skin sensitisation

Skin sensitisation Based on available data the classification criteria are not met.

Germ cell mutagenicity

Genotoxicity - in vitro Based on available data the classification criteria are not met.

Carcinogenicity

Carcinogenicity Based on available data the classification criteria are not met.

Reproductive toxicity

Reproductive toxicity - fertility Based on available data the classification criteria are not met.

Specific target organ toxicity - single exposure

STOT - single exposure STOT SE 2 - H371 STOT SE 3 - H335 May cause respiratory irritation.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure Based on available data the classification criteria are not met.

Aspiration hazard

Aspiration hazard Not anticipated to present an aspiration hazard, based on chemical structure.

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Toxicological information on ingredients.

1-pentanol

Acute toxicity - oral

Acute toxicity oral (LD₅₀) 3,645.0
mg/kg)

Species Rat

Notes (oral LD₅₀) REACH dossier information. Based on available data the classification criteria are not met.

ATE oral (mg/kg) 3,645.0

Acute toxicity - dermal

Acute toxicity dermal (LD₅₀) 2,292.0
mg/kg)

Species Rabbit

Notes (dermal LD₅₀) REACH dossier information. Based on available data the classification criteria are not met.

Acute toxicity - inhalation

Notes (inhalation LC₅₀) Converted acute toxicity point estimate (cATpE) Harmful if inhaled.

ATE inhalation (vapours 11.0
mg/l)

Skin corrosion/irritation

Animal data Dose: 0.5 mL, 15 minutes, Rabbit Erythema/eschar score: Well defined erythema (2). Oedema score: No oedema (0). REACH dossier information. Irritating.

Skin sensitisation

Skin sensitisation Guinea pig maximization test (GPMT) - Guinea pig: Not sensitising. REACH dossier information. Based on available data the classification criteria are not met.

Germ cell mutagenicity

Genotoxicity - in vitro Gene mutation: Negative. REACH dossier information. Based on available data the classification criteria are not met.

Genotoxicity - in vivo Chromosome aberration: Negative. REACH dossier information. Read across data. Based on available data the classification criteria are not met.

Specific target organ toxicity - single exposure

STOT - single exposure STOT SE 3 - H335 May cause respiratory irritation.

hydrochloric acid

Skin corrosion/irritation

Animal data Dose: 0.5 ml (37%), 1 / 4 hours, Rabbit REACH dossier information. Skin Corr. 1B - H314 Causes severe skin burns and eye damage.

Serious eye damage/irritation

Serious eye damage/irritation Dose: 0.1 ml (10%), 1 second, Rabbit REACH dossier information. Eye Dam. 1 - H318 Causes serious eye damage.

Skin sensitisation

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Skin sensitisation	Guinea pig maximization test (GPMT) - Guinea pig: Not sensitising. REACH dossier information.
<u>Carcinogenicity</u>	
Carcinogenicity	NOAEL < 10 ppm, Inhalation, Rat REACH dossier information. No evidence of carcinogenicity in animal studies.
IARC carcinogenicity	IARC Group 3 Not classifiable as to its carcinogenicity to humans.
<u>Specific target organ toxicity - single exposure</u>	
STOT - single exposure	STOT SE 3 - H335 May cause respiratory irritation.
<u>Specific target organ toxicity - repeated exposure</u>	
STOT - repeated exposure	NOAEL 20 ppm, Inhalation, Rat REACH dossier information.

SECTION 12: Ecological Information

12.1. Toxicity

Toxicity	Based on available data the classification criteria are not met. However, large or frequent spills may have hazardous effects on the environment.
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Ecological information on ingredients.

1-pentanol

Acute toxicity - fish	LC ₀ , 96 hours: 400 mg/l, Brachydanio rerio (Zebra Fish) LC ₅₀ , 96 hours: 530 mg/l, Brachydanio rerio (Zebra Fish) LC ₁₀₀ , 96 hours: 600 mg/l, Brachydanio rerio (Zebra Fish) REACH dossier information.
Acute toxicity - aquatic invertebrates	EC ₀ , 48 hours: 250 mg/l, Daphnia magna EC ₅₀ , 48 hours: 341.21 mg/l, Daphnia magna EC ₁₀₀ , 48 hours: 500 mg/l, Daphnia magna REACH dossier information.
Acute toxicity - aquatic plants	EC ₅ , 8 days: 260 mg/l, Scenedesmus quadricauda REACH dossier information.
Acute toxicity - microorganisms	EC ₁₀ , 180 minutes: 370 mg/l, Activated sludge EC ₂₀ , 180 minutes: 810 mg/l, Activated sludge EC ₅₀ , 180 minutes: > 1000 mg/l, Activated sludge REACH dossier information. Read across data.

hydrochloric acid

Acute toxicity - fish	LC ₅₀ , 96 hours: pH 3.25 - 3.5 , Lepomis macrochirus (Bluegill) REACH dossier information.
Acute toxicity - aquatic invertebrates	NOEC, 48 hours: pH 5.5 , Daphnia magna EC ₅₀ , 48 hours: pH 4.92 , Daphnia magna REACH dossier information.
Acute toxicity - aquatic plants	EC ₅₀ , 72 hours: pH 4.7 , Chlorella vulgaris REACH dossier information.
Acute toxicity - microorganisms	EC ₅₀ , 3 hours: pH 5 - 5.5 , Activated sludge REACH dossier information.

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12.2. Persistence and degradability

Persistence and degradability There are no data on the degradability of this product. Volatile substances are degraded in the atmosphere within a few days.

Ecological information on ingredients.

1-pentanol

Biodegradation	Water - Degradation (100%): 18 days Read across data. REACH dossier information. The substance is readily biodegradable.
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12.3. Bioaccumulative potential

Bioaccumulative potential Not determined.

Partition coefficient Not determined.

12.4. Mobility in soil

Mobility The product contains organic solvents which will evaporate easily from all surfaces. The product contains substances which are water-soluble and may spread in water systems.

Ecological information on ingredients.

1-pentanol

Adsorption/desorption coefficient	- Koc: 6.33 @ 25°C - log Koc: 0.8 @ 25°C QSAR model REACH dossier information.
Henry's law constant	1.34 Pa m ³ /mol @ 25°C QSAR model REACH dossier information.

12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment This product does not contain any substances classified as PBT or vPvB.

12.6. Other adverse effects

Other adverse effects Not relevant.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

General information Reuse or recycle products wherever possible. Dispose of surplus products and those that cannot be recycled via a licensed waste disposal contractor. Residues and empty containers should be taken care of as hazardous waste according to local and national provisions.

Disposal methods Absorb in vermiculite, dry sand or earth and place into containers. Place waste in labelled, sealed containers. Dispose of contents/container in accordance with national regulations.

SECTION 14: Transport information

14.1. UN number

UN No. (ADR/RID)	1993
UN No. (IMDG)	1993
UN No. (ICAO)	1993
UN No. (ADN)	1993

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14.2. UN proper shipping name

Proper shipping name (ADR/RID)	FLAMMABLE LIQUID, N.O.S. (1-pentanol)
Proper shipping name (IMDG)	FLAMMABLE LIQUID, N.O.S. (1-pentanol)
Proper shipping name (ICAO)	FLAMMABLE LIQUID, N.O.S. (1-pentanol)
Proper shipping name (ADN)	FLAMMABLE LIQUID, N.O.S. (1-pentanol)

14.3. Transport hazard class(es)

ADR/RID class	3
ADR/RID classification code	F1
ADR/RID label	3
IMDG class	3
ICAO class/division	3
ADN class	3

Transport labels



14.4. Packing group

ADR/RID packing group	III
IMDG packing group	III
ADN packing group	III
ICAO packing group	III

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant
No.

14.6. Special precautions for user

EmS	F-E, S-E
ADR transport category	3
Emergency Action Code	•3Y
Hazard Identification Number (ADR/RID)	30
Tunnel restriction code	(D/E)

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not relevant.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

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National regulations	EH40/2005 Workplace exposure limits.
EU legislation	<p>Council Directive of 20 May 1975 on the approximation of the laws of the Member States relating to aerosol dispensers (75/324/EEC).</p> <p>Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended).</p> <p>Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (as amended).</p>

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

SECTION 16: Other information

Classification procedures according to Regulation (EC) 1272/2008	Flam. Liq. 3 - H226: Expert judgement. Acute Tox. 4 - H332, Skin Irrit. 2 - H315, STOT SE 3 - H336: Calculation method.
Revision comments	Classification according to EC 1272/2008 (CLP).
Revision date	27/09/2016
Revision	5
Supersedes date	09/04/2015
SDS number	802
Risk phrases in full	<p>R10 Flammable.</p> <p>R20 Harmful by inhalation.</p> <p>R34 Causes burns.</p> <p>R37 Irritating to respiratory system.</p> <p>R37/38 Irritating to respiratory system and skin.</p>
Hazard statements in full	<p>H226 Flammable liquid and vapour.</p> <p>H314 Causes severe skin burns and eye damage.</p> <p>H315 Causes skin irritation.</p> <p>H318 Causes serious eye damage.</p> <p>H332 Harmful if inhaled.</p> <p>H335 May cause respiratory irritation.</p>

The information in this safety data sheet was obtained from current and reliable sources. However, the data is provided without warranty, expressed or implied, regarding its correctness or accuracy. Since the conditions for use, handling, storage and disposal of this product are beyond Pro-Lab Diagnostics control, it is the users responsibility to perform thorough testing of this product when used in combination with any other product. It is suggested that users familiarise themselves with this safety data sheet before handling the product.